

CLAIMS

1. A multiple test probe system comprising:

a support;

a probe bus comprising a plurality of wires;

5 a mount rotationally coupled to said support and capable of rotating to a plurality of testing positions;

10 a plurality of probe assemblies coupled to said mount and associated with said plurality of testing positions, wherein each of said probe assemblies include a plurality of electrical contacts coupled to said plurality of wires of said probe bus regardless of a testing position of said mount;

15 a Geneva Mechanism having a driven wheel provided with a plurality of slots, attached to said mount for co-rotation therewith, and a drive wheel rotationally coupled to said support and provided with a drive member engaging one of said plurality of slots of said driven wheel, wherein rotation of said drive wheel relative to said support can provide an incremental angular rotation to said driven wheel due to the engagement of said member with a slot, such that a position after a position when said member is disengaged from said slot coincides with at least one of said plurality of test positions; and,

20 a motor coupled between said drive wheel and said support.

2. A multiple test probe system as recited in claim 1, wherein;

said driven wheel comprises a plurality of radially extending slots and a concave cam follower guiding surface interposed between each pair of said radially extending slots;

said drive wheel comprises a drive member and a restraining cam having a cylindrical convex surface, said drive member of said drive wheel being engagable with one of said radially extending slots to incrementally rotate said driven wheel through rotation of said drive wheel; and,

said cylindrical convex surface of said drive wheel is engaged with said concave cam follower guiding surface of said driven wheel during a portion of time when said drive member is not engaged with said plurality of radially extending slots.

5       3. A multiple test probe system as recited in claim 1, further comprising a position sensor mounted at a contact position on said support, wherein said position sensor is activated to verify when at least one of said plurality of probe assemblies is in said testing position.

10      4. A multiple test probe system as recited in claim 3, wherein said position sensor is at least one of a microswitch, an optical sensor, and a magnetic sensor.

15      5. A multiple test probe system as recited in claim 1, wherein said electrical contacts are coupled to said probe bus in parallel.

6. A multiple test probe system as recited in claim 1, wherein each of said plurality of probe assemblies includes four electrical contacts.

20      7. A multiple test probe system as recited in claim 2, wherein said position sensor is placed to detect said drive member position during said portion of time said drive member is not engaged with said radially extending slots in said driven wheel.

8. A multiple test probe system as recited in claim 2, wherein at least one of said plurality of radially extending slots is shortened, such that engagement of said shortened slot with said drive member prevents complete rotation of said drive wheel.

9. A method for providing a multiple test probe system comprising:

providing a support;

providing a probe bus comprising a plurality of wires;

providing a mount rotationally coupled to said support and capable of rotating to a plurality of testing positions;

providing a plurality of probe assemblies coupled to said mount and associated with said plurality of testing positions, wherein each of said probe assemblies include a plurality of electrical contacts coupled to said plurality of wires of said probe bus regardless of a testing position of said mount;

providing a Geneva Mechanism having a driven wheel provided with a plurality of slots, attached to said mount for co-rotation therewith, and a drive wheel rotationally coupled to said support and provided with a member engaging one of said plurality of slots of said driven wheel, wherein rotation of said drive wheel relative to said support can provide an incremental angular rotation to said driven wheel due to the engagement of said member with a slot, such that a position after a position when said member is disengaged from said slot coincides with at least one of said plurality of test positions; and,

providing a motor coupled between said drive wheel and said support.

10. A method for providing a multiple test probe system as recited in claim 9 further comprising:

providing said driven wheel having a plurality of radially extending slots and a concave cam follower guiding surface interposed between each pair of said radially extending slots;

providing said drive wheel having a drive member and a restraining cam having a cylindrical convex surface, said drive member of said drive wheel being engagable with one of said radially extending slots to incrementally rotate said driven wheel through rotation of said drive wheel; and,

engaging said cylindrical convex surface of said drive wheel with said concave cam follower guiding surface of said driven wheel during a portion of time when said drive member is not engaged with said plurality of radially extending slots.

5 11. A method for providing a multiple test probe system as recited in claim 9 further comprising:

providing a position sensor mounted at a contact position on said support, wherein said position sensor is activated to verify when at least one of said plurality of probe assemblies is in said testing position.

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12. A method for providing a multiple test probe system as recited in claim 11 further comprising:

providing said position sensor from at least one of a microswitch, an optical sensor, and a magnetic sensor.

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13. A method for providing a multiple test probe system as recited in claim 9 further comprising:

coupling said electrical contacts to said probe bus in parallel.

20 14. A method for providing a multiple test probe system as recited in claim 9 further comprising:

providing four electrical contacts for each of said plurality of probe assemblies.

25 15. A method for providing a multiple test probe system as recited in claim 10 further comprising:

placing said position sensor to detect said drive member position during said portion of time said drive member is not engaged with said radially extending slots in said driven wheel.

16. A method for providing a multiple test probe system as recited in claim 10 further  
5 comprising:

shortening at least one of said plurality of radially extending slots, such that engagement of said shortened slot with said drive member prevents complete rotation of said drive wheel.

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